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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/838,085      | 04/18/2001  | Lawrence E. Foltzer  | 05043.P001          | 9574             |

7590 12/19/2003

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EXAMINER

ARTMAN, THOMAS R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2882     |              |

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/838,085

**Applicant(s)**

FOLTZER ET AL.

**Examiner**

Thomas R Artman

**Art Unit**

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-7,10-12,15-17 and 22-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-29 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,10-12 and 15-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigematsu (US 5,185,825).

Regarding claim 1, Shigematsu discloses the following structure in an optical switch (Fig.16, for example), including:

- 1) a base member (item 141),
- 2) a first plate (item 121) having a plurality of v-shaped grooves (see Fig.2) to hold a set of optical fibers, the first plate being disposed on a surface of the base member, and
- 3) a second plate (item 122) having a v-shaped groove to hold a secondary optical fiber, the second plate being disposed and movable with respect to the surface of the base member,
- 4) the second plate being movable relative to the first plate to enable optical coupling of the secondary optical fiber to one of the first optical fibers.

With respect to claims 10 and 11, Shigematsu discloses grooves (Fig.2, for example) in the plates to hold alignment/bearing rods (item 125). These are one and the same in the disclosure because the rods provide alignment as well as a bearing surface for sliding.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigematsu and in view of Buchholz (US 5,943,456).

Regarding claim 12, Shigematsu discloses the structure as outlined above against claims 1 and 10.

Regarding all three claims, though Shigematsu does not specifically disclose the use of a line card with a switch, Buchholz teaches that switches can be used with line cards, in col.4, lines 23-28, "...as is generally known in the art." Line cards generally interface with devices, such as optical to electrical converters to interface with customers, mux/demux devices, and quality monitors, that are used throughout an optical communication system. All of the inputs and outputs of the line card need to be routed for proper communication with other devices. All of the fibers between the switch and line card correspond to the number of I/O fibers the line card uses in order to communicate with the other devices in the communication system. In this way, communication between the line card and other devices is easier and more flexible since the addition of a switch can route data to various devices on the same fiber, as necessary.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a switch in conjunction with a line card to allow for increased flexibility within the communications network.

Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigematsu and Buchholz and in view of Way (US 6,421,153).

Regarding both claims, Way teaches the method of error detection and compensation for signal integrity in col.1, lines 40-50. In a typical WDM system, poor quality signal transfer is compensated by switching the data to another, redundant channel that is performing better. The examiner refers to the channel as “redundant” because not all channels are used simultaneously in a typical WDM transmission system. Though the application specifically refers to switching an optical signal to another bandwidth, one skilled in the art would recognize that one could provide for redundant optical fibers and switch an optical signal from one fiber to another in a fiber optic system as dictated by known quality controllers and criteria. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an optical switch in order to redirect optical signals from one optical fiber to another in order to compensate for faulty signal transmission in an efficient way.

Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigematsu, Buchholz and Way and in view of Naraoka (US 6,108,467).

Regarding both claims, Naraoka teaches of switching an Nx1 switch for use in error detection and inspection methods (col.3, lines 51-58, and col.9, line 61 to col.10, line 7). Here, the Nx1 optical switch is used to direct signals to signal integrity monitors, which greatly simplifies such inspection circuitry. This implies a use of the switch for aiding signal integrity monitors to perform their functions more efficiently in an optical communication system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention

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was made to use a Nx1 switch in conjunction with signal integrity monitoring devices for performing inspections.

Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigematsu and in view of Steinberg (US 2001/0041026).

Regarding both claims, Shigematsu does not teach of the specific materials used. As stated in the previous Office action, silicon is known to be compatible with integrated circuits (ICs). In fact, the use of silicon would allow precision V-grooves to be formed by the well-known technique of anisotropically etching a (100) silicon substrate. The sides of the grooves follow the (111) planes. In this way, the use of silicon would provide a well-known, relatively cheap material that would integrate seamlessly with ICs and IC processing. The switch could be integrated within the same line card or a different line card.

Steinberg teaches that such monocrystalline materials are exemplary for such an application on p.3, par.36. Further, he states that glass, quartz, metal and plastic are also appropriate materials.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use materials such as glass, quartz, metal, plastic, and particularly silicon, for the first and second plates.

***Response to Arguments***

Applicant's arguments filed November 14<sup>th</sup>, 2003, have been fully considered but they are not persuasive. Claims 1, 10 and 11 stand rejected under 35 USC 102(b) as being anticipated by Shigematsu. The applicant argues that the first plate, item 121, does not have v-grooves for holding the optical fibers, according to Figs. 14a and 14b. The examiner disagrees. The item number 121 points generally to the entire assembly of Figs. 14a and 14b. Both figures show v-grooves for holding the optical fibers (item 134) in the first plate. Furthermore, the second plate, generally indicated as item 122 of Figs. 15a and 15b, also has a v-groove (item 139) for holding an optical fiber.

***Allowable Subject Matter***

Claims 22-29 are allowed by successfully responding to the claim objections made in the previous Office action, dated May 8<sup>th</sup>, 2003. The reasons for allowance were made clear in that action.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (703) 305-0203. The examiner can normally be reached on 9am - 6:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Thomas R. Artman  
Patent Examiner  
December 1, 2003



**EDWARD J. GLICK**  
**SUPERVISORY PATENT EXAMINER**